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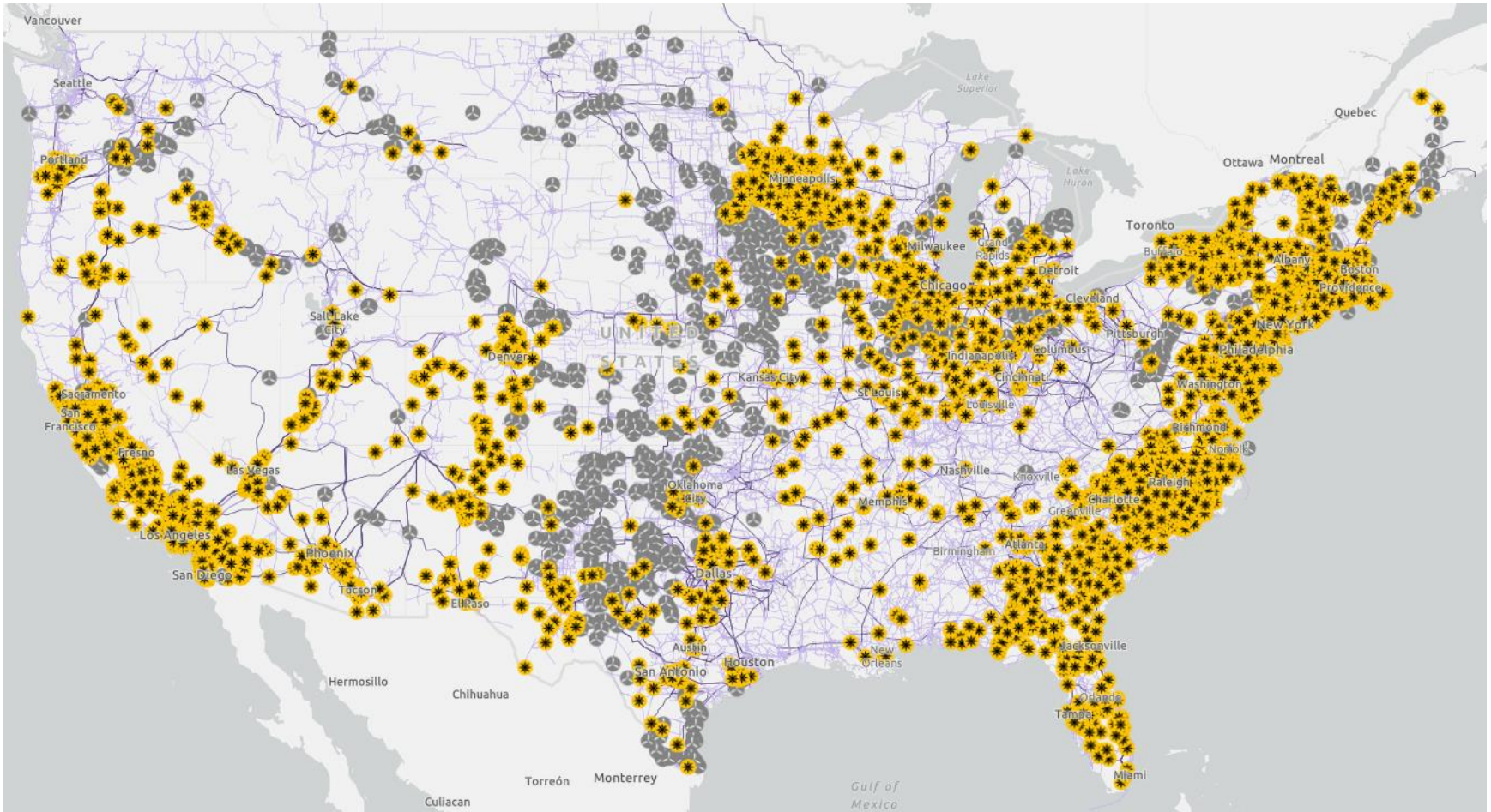
What an Energy Transition Means for Rural America

Sarah Mills, PhD

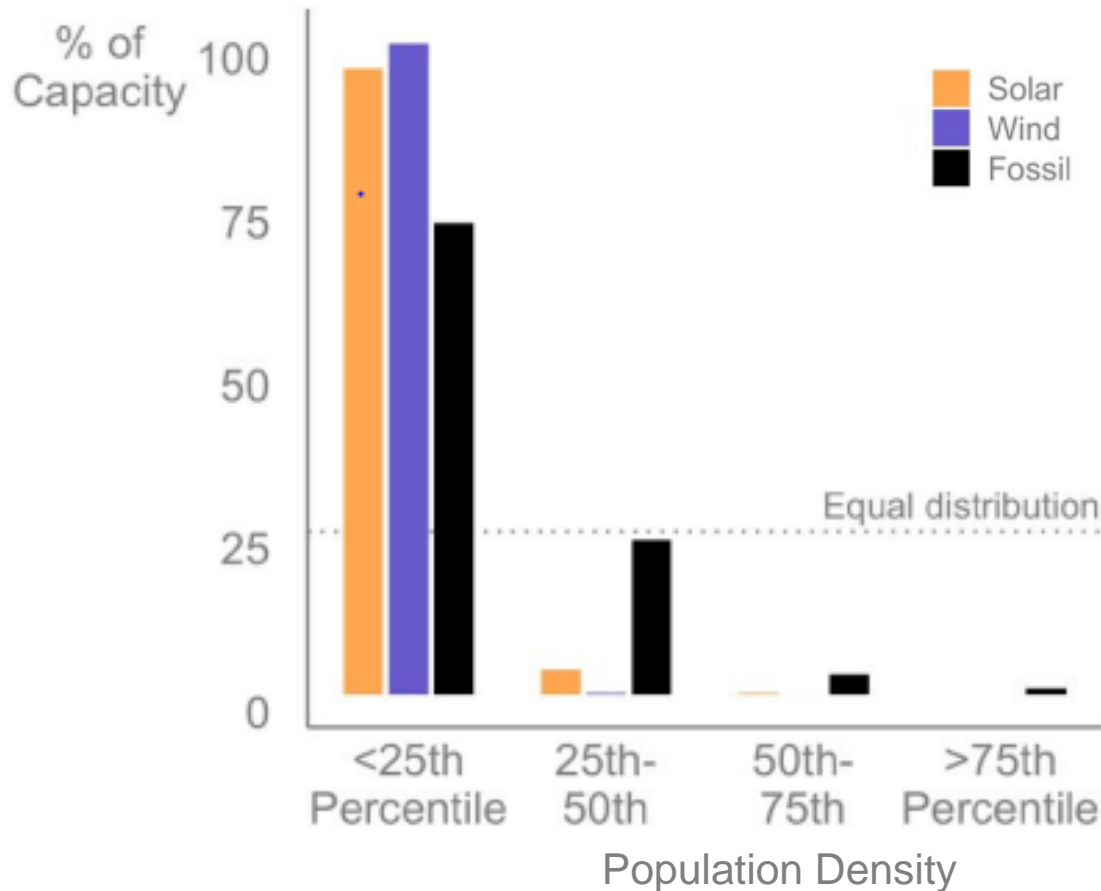
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10/6/2023

Our Energy Future is Rural



...even more so than our Energy (generation) Past



O'Shaughnessy, Eric, Ryan H Wisner, Ben Hoen, Joseph Rand, and Salma Elmallah. "Drivers and energy justice implications of renewable energy project siting in the United States." *Journal of Environmental Policy & Planning* (2022).



The Footprint of Energy Generation

Fuel	Footprint of 1,000 MW
Natural gas	~100 acres
Solar (utility-scale)	5,000-10,000 acres
Solar (rooftop)	0*
Wind	500-1,000 acres; 100,000+ under lease

There's headlines like these...

January 4, 2023

Wind generation hits new record high as 2022 comes to a blustery end

By Molly Lempriere



Strong wind generation has helped keep the grid secure over much of the winter so far. Image: Pxfuel.

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Biden admin launches \$11B program to electrify rural America

By Brian Dabbs | 05/14/2023 06:52 AM EDT



Solar panels running across farmland in Thurmont, Md. Julio Cortez/AP Photo

....but also signs like these



How to explain different reactions?



Scott Miller / CTV London



Photo by Curt Nikisch

What the research says

- Socioeconomic impacts
 - E.g., Lease model, neighbor payments, taxes / community benefits, shared ownership
- Process fairness, participation, trust
 - i.e., Developer & local govt actions



ELECTRICITY MARKETS & POLICY

Thirty years of North American wind energy acceptance research: What have we learned?

[f](#) [t](#) [e](#) [p](#)

Date Published
06/2017

Authors
Joseph Rand, Ben Hoen

DOI
10.1016/j.erss.2017.05.019@p

Related Files
[Pre-print Article PDF](#)
(1.1 MB)

Abstract
Thirty years of North American research on public acceptance of wind power projects has produced important insights, yet knowledge gaps remain. This review synthesizes the literature, revealing the following lessons learned. (1) North American support for wind power has been consistently high. (2) The NIMBY (not in my backyard) explanation for resistance to wind power development is invalid. (3) Socioeconomic impacts of wind power development are strongly tied to acceptance. (4) Sound and visual impacts of wind power projects are strongly tied to annoyance and opposition, and ignoring these concerns can exacerbate conflict. (5) Environmental concerns matter, though less than other factors, and these concerns can both help and hinder wind power development. (6) Issues of fairness, participation, and trust during the development process influence acceptance. (7) Distance from turbines affects other explanatory variables, but alone its influence is unclear. (8) Viewing opposition as something to be overcome prevents meaningful understanding and implementation of best practices. (9) Implementation of research findings into practice has been limited. The paper also identifies areas for future research on wind power project acceptance. With continued research efforts and a commitment toward implementing research findings into developer and policymaker practice, conflict and perceived injustices around proposed and existing wind power projects might be significantly lessened.

Journal
Energy Research & Social Science

What my observations (and some research) add

- 1) Energy is rural economic development
- 2) Tax benefits rarely visible to residents
- 3) Fit linked to why you live there
- 4) “It’s hard to get a straight story”
- 5) Transparency, opportunity for input are critical in short- and long-term
- 6) Bigger is not always better

1) Energy is rural economic development



The image shows a screenshot of a news article from CohnReznick. The article is titled "3 ways renewable energy projects can be a boon to rural communities" and is dated 10/15/2021, written by Andrew Lines and Sonia Singh. The main image features a large array of solar panels in the foreground and several wind turbines in the background against a sunset sky. The article is displayed on a website with a navigation bar at the top that includes "USA Today" and "The Washington Post" logos. The CohnReznick logo is also visible, along with the text "CohnReznick: Advisory, Assurance, Tax Firm > Insights > 3 ways renewable energy projects can be a boon to rural communities".

USA Today

The Washington Post
Democracy Dies in Darkness

Business

CohnReznick
ADVISORY • ASSURANCE • TAX

CohnReznick: Advisory, Assurance, Tax Firm > Insights > 3 ways renewable energy projects can be a boon to rural communities

for farmers:

Wind energy can help American

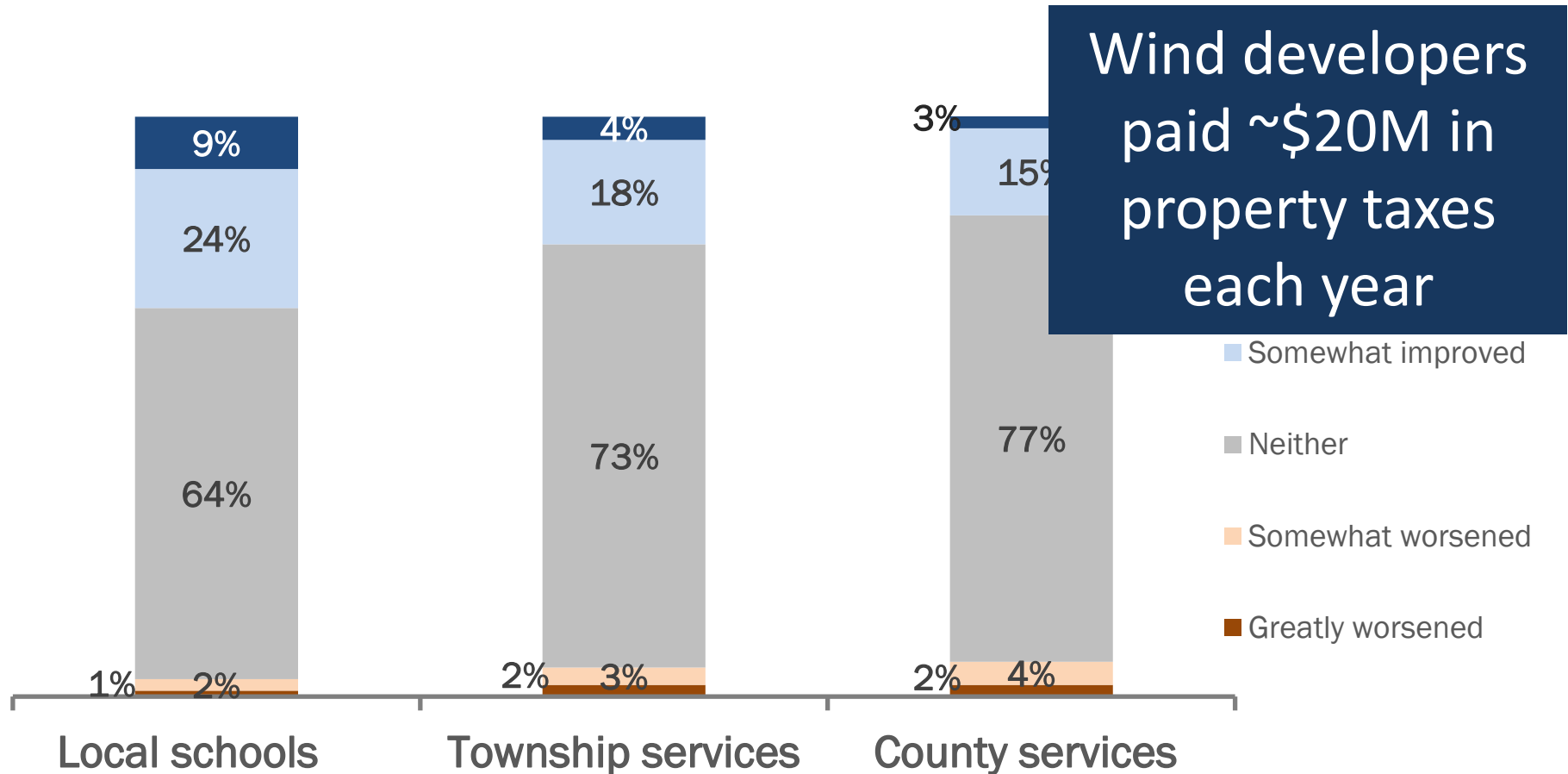
3 ways renewable energy projects can be a boon to rural communities

10/15/2021 | Andrew Lines, Sonia Singh

<https://www.usatoday.com/story/news/nation/2020/02/16/wind-energy-can-help-american-farmers-earn-money-avoid-bankruptcy/4695670002/>

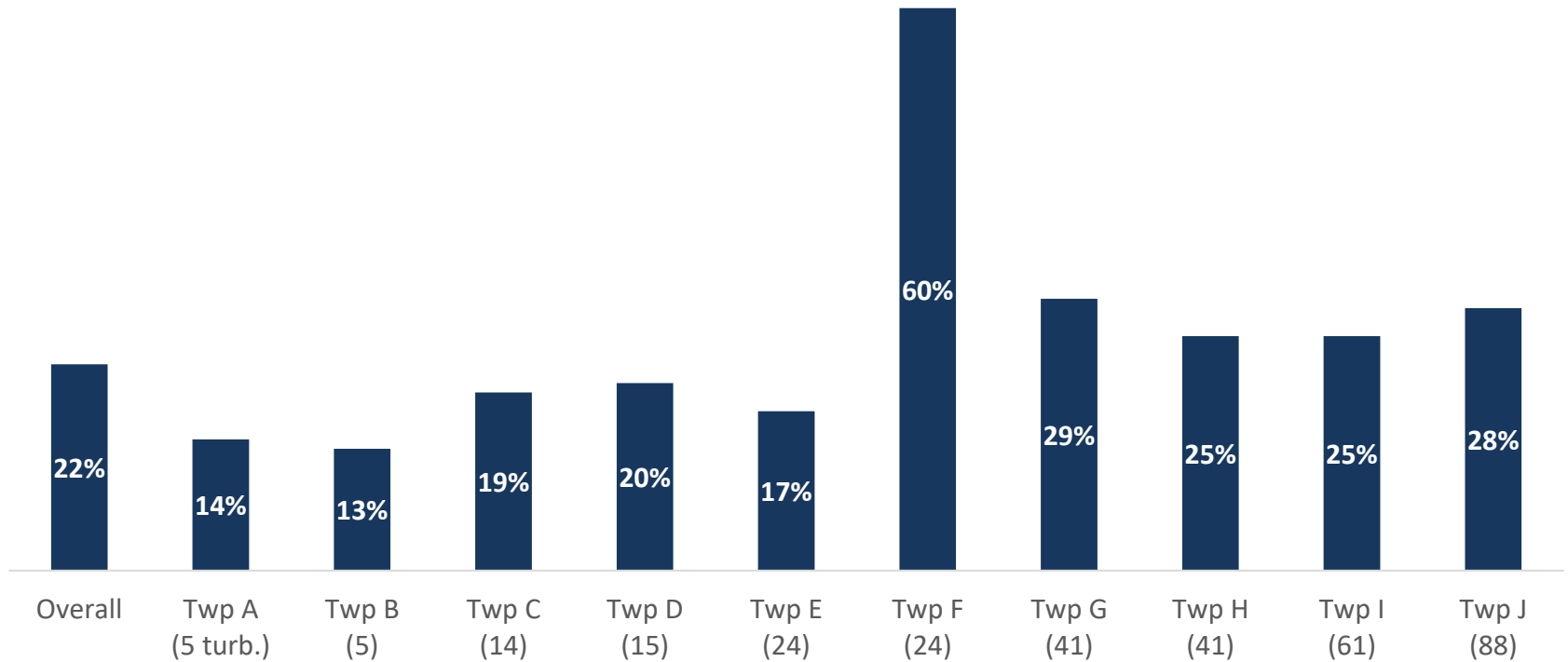


2) Tax Benefits Rarely Visible to Residents



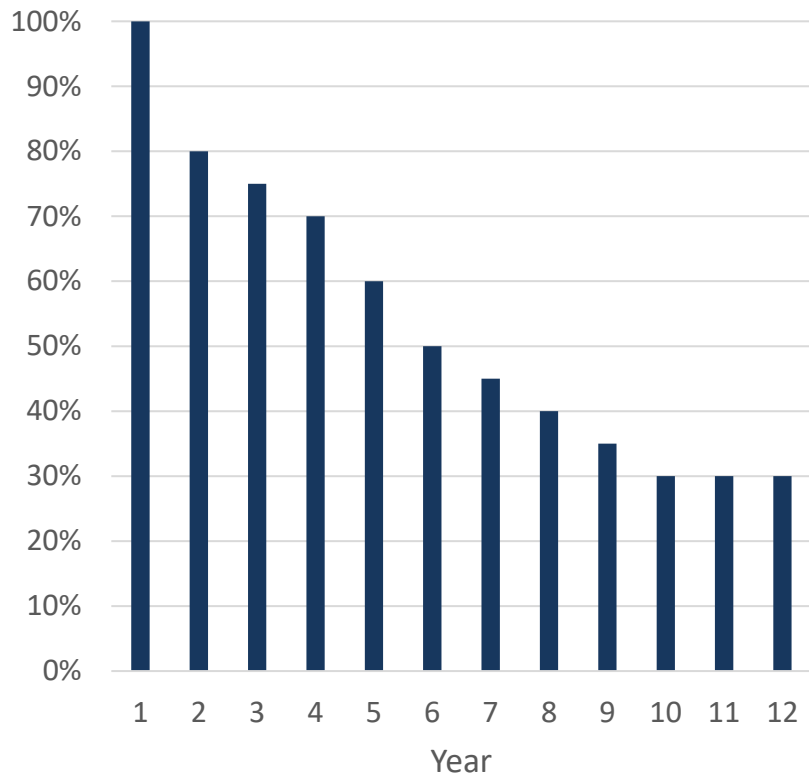
2) Tax Benefits Rarely Visible to Residents

% who said Township Services Improved from Wind Development



2) Tax Benefits Rarely Visible to Residents

STC Wind Multiplier Table



- Human nature
- Revenue decline over time
- Changes = Uncertainty

3) Fit Linked to why you live there



 Energy Research & Social Science
Volume 72, February 2021, 101873

Original research article

Farmers vs. lakers: Agriculture, amenity, and community in predicting opposition to United States wind energy development

Douglas J. Bessette ^a & Sarah R. Mills ^b



**Michigan to you?
Fortune 500 wind
I'd like to do to your**



**Too Many
Too Tall
Too Close**

Huron Co, MI

4) “It’s hard to get a straight story”



<https://insideclimateneews.org/news/30092022/solar-power-williamsport-ohio-rural-leaders/>



<https://www.thedailynews.cc/articles/i-will-continue/>

5) Transparency, Opportunity for Input Critical to Public Acceptance



Photo: <https://www.uppermichiganssource.com/content/news/Friends-of-the-Huron-Mountains-not-in-favor-of-wind-turbine-project-in-LAnse-489183491.html>

- Process = Not just what's on the books
- Of developers:
 - Confidentiality agreements
 - “lease first, sort out zoning later”
- Local official responsiveness
 - COI

6) Bigger is not always better



Department of Energy (.gov)

<https://www.energy.gov> > eere > articles > wind-turbin... ⋮

Wind Turbines: the Bigger, the Better

Aug 16, 2022 — The hub **height** for utility-scale land-based wind **turbines** has increased 66% since 1998–1999, to about 94 meters (308 feet) in 2021. That's about ...



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The \$1.5 Billion Mammoth Solar Farm Will Be the Largest in the US

Spanning two entire counties.



Chris Young | Nov 16, 2021 11:13 AM EST

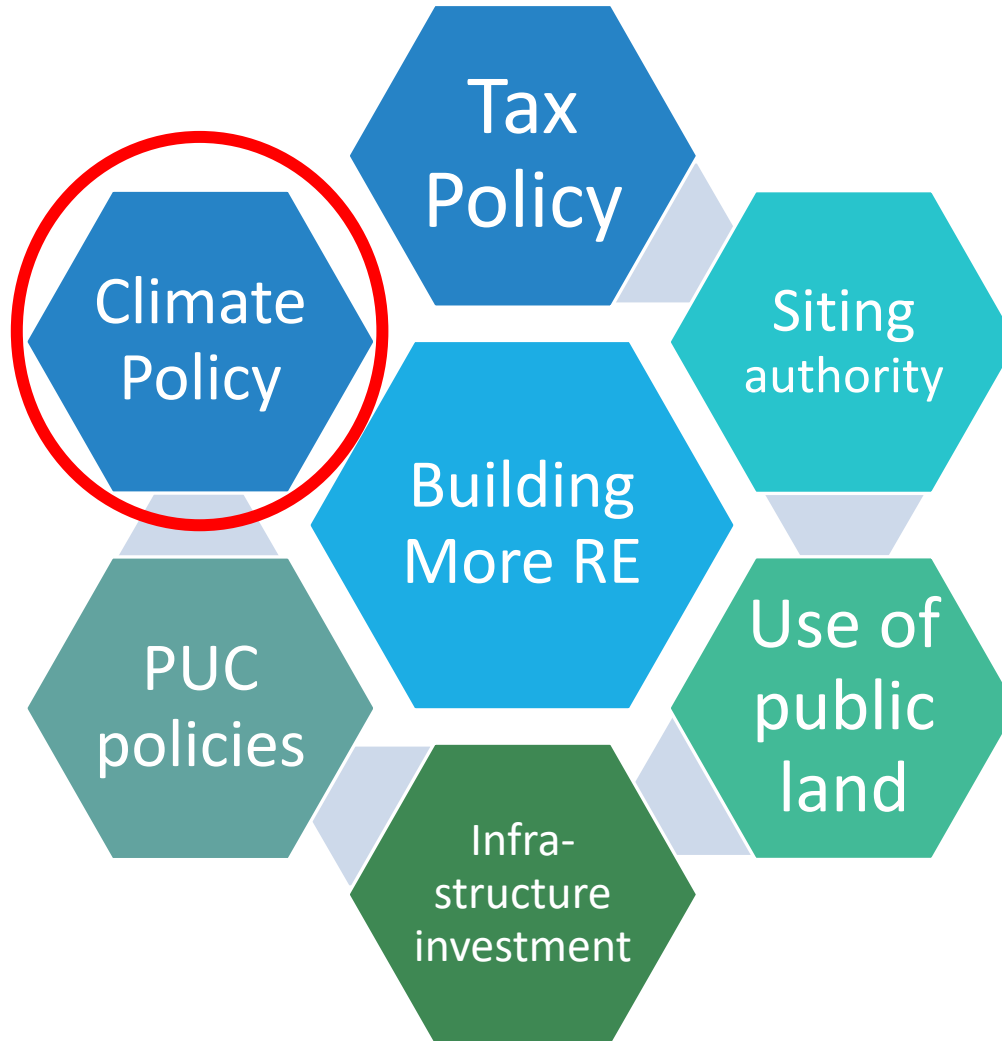


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A Clean Energy Standard Won't Self-Implement

**OK, SO WHAT MIGHT BE
DONE?**

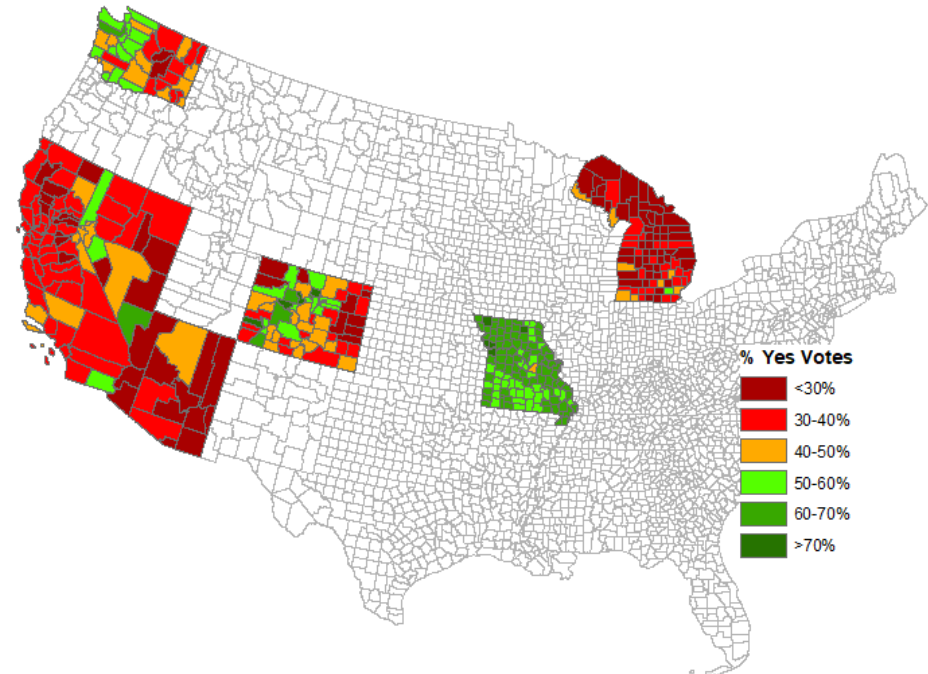
The Web of State Policies



1) Energy is rural economic development

- Rural-centered thinking in policy development
 - Does policy reduce local benefits?
 - Does policy polarize issue?

State	Year	Goal	% Yes
CO	2004	10% x 2015	52%
WA	2006	15% x 2020	52%
MO	2008	15% x 2021	66%
CA	2008	50% x 2025	36%
MI	2012	25% x 2025	38%
AZ	2018	50% x 2030	31%
NV	2018	50% x 2030	59%

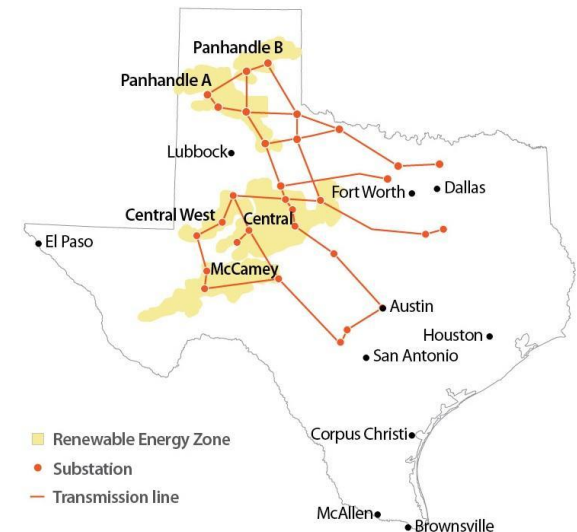


2) Tax Benefits Rarely Visible to Residents

- Fed-style tax cuts don't work at local level
 - Developers want/need to pay local taxes
 - Cut taxes that don't stay local ← Minnesota
- Policies that increase tangible local benefits
 - Community benefits agreements (with registry)
 - Neighbor payments ← New York
 - Increased incentives ← Michigan
- Need to think ahead for new technologies

3) Fit Linked to why you live there

- Brownfield reuse (but not *assuming* they want energy)
 - Need supportive policy: \$ incentives, speedy review, support for smaller projects
 - Use of public brownfields/marginal lands
- Extend transmission to welcoming places
 - Energy zone planning with *Farmers vs. Lakers* in mind
 - Investment in infrastructure to make it so



4) “It’s hard to get a straight story”

- Find and enable (fund) the trusted voices
 - Land grant Extension **IN, OH, PA, WI**
 - State energy office **MA, NY, VA**
 - Local government association **MI**



5) Transparency, Opportunity for Input Critical to Public Acceptance

- Serious qualms about state-level siting
 - See ----->
 - BUT process improvements, guardrails very much needed
- Get negative input early
 - Exceed notice requirements
 - Take COI seriously
- How to motivate a conversation apart from an emergency?
 - Set a deadline for action
 - Require all localities (not just rural govts) do their fair share



6) Bigger is not always better

- Need policies to take pressure off of gigantic projects
 - Expanding opportunities for distributed generation
 - Small solar farms (on distribution grid)
 - “Community” solar even better



Many states

- Limiting double-standards, esp. for small projects [flip typical siting on its head]
 - Rein in restrictive roof-top, backyard solar rules, small turbine rules
 - Limiting HOA rules

Make the Problem Bigger?! A Rural Planning Renaissance

HELPING RURAL COMMUNITIES FORGE A TANGIBLE PATH FOR A PROSPEROUS FUTURE

Trusted
entities
lead

a proactive
planning
process

about how
community
values &
goals

are
impacted
by rural
development
options

in a
supportive
policy
context

to inform
better
projects

- Michigan's Office of Rural Development
- Calling all rural-ists!
- USDA-RD vs. DOE

Closing Thoughts

- All energy sources have trade-offs at the local level
 - Need to be realistic and honest
- Opportunity to **expand urban-rural partnership** rather than stoke divide
 - How state, fed leaders respond to local opposition critical
- Let me know what you think! sbmills@umich.edu